

ABSTRACT

A radio link management system for a home or office substantially (i) an ad hoc network of agents wirelessly communicating among themselves, while (iii) clients wirelessly 5 communicate with proximate agents. Control of the network may be centralized as network controller integrated with an agent, or may be distributed upon the network of agents. Some agent or agents, which may include an agent that is also the network controller, typically serves as a gateway device which connects to a worldwide 10 communications network external to the home or office, normally by fiber or by wire.

Each agent is most commonly a small radio transceiver plus logic and power supply that mounts upon a wall and plugs directly into an AC power socket. Agents wirelessly communicate among 15 themselves and with the controller -- which may be centralized or distributed -- in a bandwidth-efficient mode since prime power is not an issue. Each client, which is most commonly a battery-powered user device, wirelessly radio communicates with one or more proximate-located agents. Consistent with overall demand for the 20 radio resource, parameters for radio communication are allocated ad hoc in a manner which is (a) client-dependent, and which (b) uses the least power from the battery-powered client. The agents establish an ad-hoc network among themselves, with routing among and between the agents being both multi-hop and "minimum hop" to 25 conserve bandwidth. Accordingly both power and bandwidth are conserved, each as and where required and desired.